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CLAIMS

1. A communication system supporting communication of data and comprising at least a first core network with a plurality of core network functional server nodes (CS core nodes; MCSs) for circuit switched communication and a second core network with a number of core network functional sever nodes (PS core nodes; SGSNs) for packet switched communication, wherein at least the CS core nodes are arranged in a pool to, in common, control a number of control nodes (BSCs), and in that an interface (Gs) between CS core nodes and PS core nodes is used for providing information to CS core nodes from PS core nodes relating to mobility related events provided from an MS to a PS core node,
c h a r a c t e r i z e d   i n
that means are provided for, when a mobile station, MS, is moved from a first CS core node to a second CS core node, from either of said first and second CS core node involved in the change, providing the PS core node to which the MS is attached, with information relating to the change of CS core nodes from said first to said second CS core node.

2. A communication system according to claim 1,
c h a r a c t e r i z e d   i n
that said means comprises means for providing and sending a first information message from said first or second CS core node to said PS core node.

3. A communication system according to claim 2,
c h a r a c t e r i z e d   i n
that said first information message comprises a message from said first CS core node indicating the address of said second CS core node.

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4. A communication system according to claim 3,
c h a r a c t e r i z e d   i n
that said first information message further comprises information
about when the PS core node shall perform a Location Update for
5   the MS towards said second CS core node.

5. A communication system according to claim 2,
c h a r a c t e r i z e d   i n
that said first information message comprises a message from said
10   second CS core node, which message comprises the address of said
second CS core node.

6. A communication system according to claim 5,
c h a r a c t e r i z e d   i n
15   that said first information message is sent after the change from
said first to said second CS core node has been effected, and in
that the second CS core node is provided with information about
the address of said PS core node from said first CS core node.

20   7. A communication system according to any one of claims 1-6,
c h a r a c t e r i z e d   i n
that when a plurality of MSs attached to a first CS core node are
(to be) moved to a second CS core node information thereon is
provided to the PS core node to which the MSs are attached for all
25   MSs substantially simultaneously, in the first information
message, or for a given number or for groups of MSs substantially
simultaneously or consecutively or according to any algorithm.

8. A communication system according to any one of the preceding
30   claims,
c h a r a c t e r i z e d   i n
that the CS core nodes are MSCs and in that the PS core nodes are
SGSNs and/or CGSNs.

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9. A communication system according to any one of claims 1-8,
c h a r a c t e r i z e d   i n
that also the, or some of the, PS core nodes are arranged in a
pool.

10. A communication system according to any one of claims 1-9,
c h a r a c t e r i z e d   i n
that the first information message is sent over the Gs interface,
and in that it is followed by an acknowledgment from the PS core
node for packet switched communication to said first/second CS
core node having sent the first information message.

11. A communication system according to any one of the preceding
claims,
c h a r a c t e r i z e d   i n
that second information means are provided for providing a new,
second, PS core node, when an MS moves from an old, first, PS core
node to said new, second, PS core node, with information about to
which CS core node the MS currently is attached/connected.

12. A communication system according to claim 11,
c h a r a c t e r i z e d   i n
that said second information means comprises means for providing
and sending a second information message from the first, old, PS
core node to the second, new, PS core node, and in that it
contains information about current CS core node.

13. A communication system according to claim 12,
c h a r a c t e r i z e d   i n
that said second information message comprises an existing message
extended with information relating to current CS core node (MSC).

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14. A communication system according to any one of claims 11-13, c h a r a c t e r i z e d   i n
that the first, old, and the second, new, PS core nodes comprise SGSNs/CGSNs and in that the current CS core node comprises an MSC.

15. A communication system according to claim 14, c h a r a c t e r i z e d   i n
that the extended message comprises an extended SGSN Context Response sent during an Inter SGSN Routing Area Update.

16. A communication system according to clam 15, c h a r a c t e r i z e d   i n
that the current MSC forms part of a (pooled) group/list of MSCs serving the current Routing Area/Location Area of the new, second, SGSN.

17. A communication system according to claim 16, c h a r a c t e r i z e d   i n
that the new, second, SGSN selects the current MSC and sends a message relating to location update (Location Update Request) to said current MSC, to avoid an MSC change for the MS.

18. A communication system according to claim 11, c h a r a c t e r i z e d   i n
that said second information means comprises means for providing and sending a second information message from a home location node (HLR) to the second, new, PS core node, and in that it comprises information about the current CS core node.

19. A communication system according to claim 18, c h a r a c t e r i z e d   i n
that said second information message comprises an existing message extended with information relating to current CS node.

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20. A communication system according to any one of claims 17-19,
c h a r a c t e r i z e d   i n
that the PS core nodes comprise SGSNs/CGSNs and in that the
5   current CS core node comprises an MSC, the existing message
comprising an Insert Subscriber Data message in the MAP (Mobile
Application Part).

21. A communication system according to any one of claims 18-20,
10   c h a r a c t e r i z e d   i n
that the new SGSN uses said information about current MSC to send
a Location Update Request to said current MSC to avoid changing
MSC for the moving MS.

15   22. A core network functional server node for circuit switched
(CS) communication (a CS core node) arranged in a pool of CS core
nodes and used in a communication system supporting communication
of data which further comprises a number of core nodes for packet
switched communication (PS core nodes) and wherein an interface
20   (Gs) is used for communication between CS core nodes and PS core
nodes,
c h a r a c t e r i z e d   i n
that the CS core node comprises means for informing a PS core node
to which an MS is attached when an MS changes from/to said CS core
25   node to/from another CS core node.

23. A CS core node according to claim 22,
c h a r a c t e r i z e d   i n
that said means comprises means for generating and sending a first
30   information message to said PS core node containing the address of
the other CS core node involved in the CS core node change and to
which the MS will be transferred.

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24. A CS core node according to claim 22,
c h a r a c t e r i z e d   i n
that said means comprises means for generating a first information
message which is sent when an MS has changed to/attached to the CS
5   core node, and in that it contains information about the address
of said CS core node.

25. A CS core node according to claim 24,
c h a r a c t e r i z e d   i n
10   that it comprises means for informing a CS core node to which an
MS will be transferred with the address of the PS core node to
which the MS is attached, such that said CS core node to which the
MS is transferred is able to send the first information message to
said PS core node.
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26. A CS core node according to claim 23,
c h a r a c t e r i z e d   i n
that the first information message comprises information about
when the PS core node should perform a Location Update towards the
20   other CS core node.

27. A CS core node according to any one of claims 22-26,
c h a r a c t e r i z e d   i n
that it comprises means for sending a first information
25   message/messages relating to a plurality or group of MSs
changing/having changed CS core node substantially simultaneously.

28. A CS core node according to any one of claims 22-27,
c h a r a c t e r i z e d   i n
30   that it comprises an MCS and in that said first information
message(s) is sent to an SGSN/CGSN, the message being sent over
the Gs interface requiring an accept message from the SGSN/CGSN.

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29. A PS core node for packet switched communication and used in a communication system supporting communication of data which comprises a plurality of PS core nodes and further comprises a pool of CS core nodes for circuit switched communication, and wherein an interface (Gs) is used for communication between PS core nodes and CS core nodes,
c h a r a c t e r i z e d   i n
that it comprises means for receiving and responding to a first information message from a CS core node when one or more MSs have changed/are to change CS core nodes containing the address of the CS core node to which the MS(s) is/are changing/have changed.

30. A PS core node according to claim 29,
c h a r a c t e r i z e d   i n
that said first information message is received/responded to over the Gs interface and in that said message comprises information about when the PS core node should perform a Location Update relating to the MS(s) towards the other/new CS core node.

31. A PS core node according to claim 29 or 30,
c h a r a c t e r i z e d   i n
that it comprises an SGSN/CGSN receiving and responding to a first information message from a CS core node comprising an MSC arranged in a pool of MSCs.

32. A PS core node according to any one of claim 29-31,
c h a r a c t e r i z e d   i n
that it further comprises second information means for sending a second information message to another PS core node to which a MS moves/attaches, which second information message contains information about the current (new) CS core node to which the MS is connected/attached.

33. A PS core node according to claim 32,
c h a r a c t e r i z e d   i n
that said second information message comprises an existing message
extended with information relating to current CS core node (MSC).

34. A PS core node according to claim 33,
c h a r a c t e r i z e d   i n
that the extended existing message comprises an extended SGSN
context response used during an Inter SGSN Routing Area Update.

35. A PS core node according to claim 34,
c h a r a c t e r i z e d   i n
that it, after having received an MS from another PS core node,
selects the (new) current CS core node and sends a Location Update
message to said current CS core node, thus avoiding a CS core node
change due to a PS core node change.

36. A home location node (HLR) used in a communication system
supporting communication of data which comprises a number of CS
core nodes for circuit switched communication, said CS core nodes
being arranged in a pool, and a number of PS core nodes for packet
switched communication, said PS core nodes communicating with said
CS core nodes over an interface (Gs),
c h a r a c t e r i z e d   i n
that said home location node comprises means for providing and
sending a second information message to a PS core node when an MS
or more MSs has/have changed attachment from another PS core node
to said PS core node about current attachment/connection of the
MS(s) to a CS core node.

37. A home location node according to claim 36,
c h a r a c t e r i z e d   i n

that said information message comprises an existing message
extended with information about current CS node to which the MS(s)
is/are connected.

38. A home location node according to claim 37,
c h a r a c t e r i z e d   i n
that the existing message comprises an Insert Subscriber Data
information message containing information about the current CS
core node to which the MS(s) is/are connected/attached.

39. A method for transfer of information messages in a
communications system supporting communication of data and
comprising a number of PS core nodes for packet switched
communication and a number of CS core nodes for circuit switched
communication, wherein at least a number of said CS core nodes are
arranged in a pool, said pooled CS core nodes and said PS core
nodes communicating over an interface (Gs) relating to mobility
related events of MSs communicated to said PS core nodes,
c h a r a c t e r i z e d   i n
that it comprises the steps of, when one or more MS being
attached/connected to a first pooled CS core node are (to be)
transferred to a second pooled CS core node:
-     providing information in a first information message from
      said first or second CS core about the address of the second
      CS core node to the PS core node to which the MS(s) is/are
      connected.

40. A method according to claim 39,
c h a r a c t e r i z e d   i n
that it comprises the step of:
-     using the Gs interface for the first information message to
      the PS core node.

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41. A method according to claim 39 or 40,
c h a r a c t e r i z e d   i n
that it further comprises the steps of, when an MS having changed
CS core node and a first PS core node is aware of the address of
5   the current CS core node, when the MS changes PS core node from
said first PS core node to a second PS core node,
-       extending an existing message to be sent to the second PS
        core node with information about current CS core node for
        the MS,
10   -   selecting, in the second PS core node, using the information
        about the current CS core node, the current CS core node to
        avoid changing CS core node for the MS.

42. A method according to clam 41,
15   c h a r a c t e r i z e d   i n
that the extended existing message is provided and sent from the
old, first, PS core node or from a home location node (HLR)
responsible for the MS.

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